

US-Claims

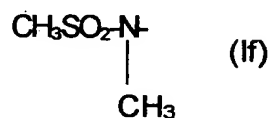
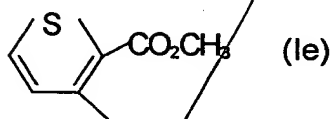
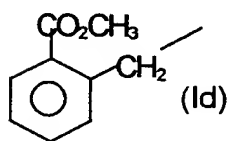
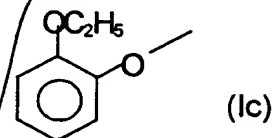
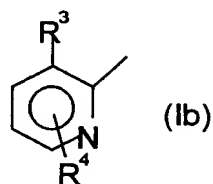
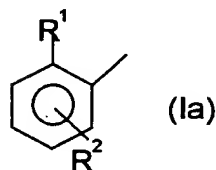
AGR 2000/M 210

- 5 1. A combination of an agrochemically active compound with a polymer with formation of electrostatic interaction in the form of intermolecular hydrogen bonds for the controlled release of this active compound, wherein the polymer and the active compound have functional groups which permit hydrogen bonds between active compound and polymer being formed.
- 10 2. The combination as claimed in claim 1, wherein the active compound is selected from the group consisting of herbicides, fungicides, insecticides, growth regulators, safeners, molluscicides, acaricides and nematocides, in particular from the group consisting of herbicides, growth regulators and safeners.
- 15 3. The combination as claimed in claim 2, wherein the herbicides are selected from the group consisting of ALS inhibitors, such as, for example, sulfonylureas, hydroxybenzonitriles, preferably bromoxynil and ioxynil, aryloxyalkylcarboxylic acids, preferably MCPA, 2,4-D, CMPP, 2,4-DP, 2,4-DB, and salts thereof, (hetero)aryloxyaryloxyalkylcarboxylic acids, preferably fenoxaprop-ethyl, dichlofop, clodinafop-propargyl, fluazifop, and derivatives thereof in the form of acids and esters, HPPDO inhibitors, preferably mesotrione or sulcotrione, cyclohexanedione oximes, preferably sethoxidim, clethodim or trialkoxidim, carbamates, phenylureas, triazines, diquat, paraquat, glufosinate and glyphosate, the growth regulators are selected from the group consisting of indolylacetic acid, indolylbutyric acid and auxins, and the safeners are selected from the group consisting of mefenpyr-diethyl and 5,5-biphenyl-2-isoxazoline-3-carboxylic acid, and their respective derivatives, such as acids, esters and salts.
- 25 4. The combination as claimed in claim 3, which comprises sulfonylureas of the formula (I) or salts thereof
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in which R' is hydrogen or a (C₁-C₁₀)-alkyl radical, preferably hydrogen or methyl,

R is a radical selected from the group consisting of the compounds corresponding to formulae (Ia) to (If)

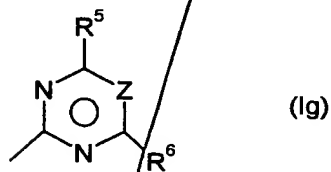


in which R' is selected from the group consisting of

-CO₂(C₁-C₁₀-alkyl), CO₂CH₂ —  O, CO₂ —  O, -CO₂N(C₁-C₁₀-alkyl), SO₂(C₁-C₄-alkyl), CF₃, -O(C₁-C₁₀-alkyl), -OCH₂CH₂Cl, CH₂CH₂CF₃, halogen, preferably Cl or F,

R², R³, R⁴, independently of one another are H, CH₃, -OH, -O(C₁-C₁₀-alkyl), -NH(C₁-C₁₀-alkyl), -N(C₁-C₁₀-alkyl)₂, NHCHO, -NHCO₂(C₁-C₂-alkyl), -CH₂NHSO₂CH₃, halogen, preferably F, Cl, Br or I,

Het is a compound of the formula



in which R⁵, R⁶ independently of one another are halogen, preferably F or Cl, -O(C₁-C₄-alkyl), C₁-C₄-alkyl, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂, -OCH₂CF₃, -OCHCl₂, and

Z is N or a CH group.

5. The combination as claimed in claim 1, wherein the polymer is soluble, dispersible or emulsifiable in water and/or organic solvents, preferably soluble in polar protic and/or polar aprotic organic solvents and/or water, preferably soluble in water, and has an absorption rate or penetration rate of < 50% in 24 h.
6. The combination as claimed in claim 1, wherein the molecular weight of the polymer is about ≥ 500 , preferably about 1 000 to 1 000 000, and the polymer is employed in a weight ratio to the active compound of from about 0.001:1 to about 1:0.001, preferably from 0.01:1 to 1:0.01, most preferably from 0.1:1 to 1:0.1.
7. The combination as claimed in claim 1, wherein the functional groups in the polymer which are suitable for forming hydrogen bonds and the active compound are selected independently of one another from the group consisting of
- OH, -NH₂, -NH-, -SO₂NH-, -SO₂NH₂, -CONH-, -CONH₂, -COOH,
 -CON<, =N-, -N=N-, -N=C-O-
8. The combination as claimed in claim 1, wherein the polymer is selected from the group consisting of polymers based on vinyl, acrylic and allyl monomers and alkali metal silicates, preferably from the group consisting of polyvinyl alcohol, poly(meth)acrylic acid, poly(meth)acrylamide, polyamides both of the type prepared by condensation of diamines with dicarboxylic acids and of the type prepared by the addition of lactams, polymers of unsaturated dicarboxylic acids, preferably of maleic acid, polymers of polyhydric unsaturated alcohols, preferably of 1,2-butenediol and 1,4-butenediol, polyvinylpyrrolidones, polyvinyl acetates and partially hydrolyzed polyvinyl acetates, polysaccharides and alkyl polysaccharides, preferably hydroxymethylcelluloses, xanthane derivatives, polyols, preferably polyethylene glycol and polypropylene glycol and block copolymers of polyethylene glycol and polypropylene glycol and their ethers, adducts of

ethylene glycol and propylene glycol to polyvalent amines, preferably to ethylenediamine, polycarbonates, polyaspartates, polystyrene sulfonates and polystyrene sulfates, polyvinyl sulfates and polyvinyl phosphates.

5 9. A formulation, comprising a combination as claimed in claim 1 and at least one further component from the group consisting of further agrochemically active compounds, surfactants, fertilizers and customary adjuvants.

10 10. The formulation as claimed in claim 9, wherein a combination of a herbicide, a safener and/or a growth regulator with a polymer is present.

15 11. The use of a combination as claimed in claim 1 or of a formulation as claimed in claim 9 or 10 for suppressing antagonistic interactions during the application of agrochemically active compounds for controlling harmful plants.

20 12. The use of a combination as claimed in claim 1 or of a formulation as claimed in claim 9 or 10 for increasing crop selectivity during the application of one or more agrochemically active compounds for controlling harmful plants.

25 13. A method for controlling harmful organisms, in particular harmful plants, which comprises applying a combination as claimed in claim 1 or a formulation as claimed in claim 9 or 10.

30 14. A process for preparing a combination as claimed in claim 1 or a formulation as claimed in claim 9 or 10, which comprises combining the active compound by customary processes which are known per se, preferably by dissolving, stirring or mixing, with a suitable polymer, and introducing this combination into the formulation, if appropriate with other active compounds, adjuvants and additives.

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